

IN THE CLAIMS

The following listing reflects the current version of all claims, and replaces all earlier versions and listings:

1. (Original) A photoelectric converter comprising a plurality of pixels each comprising a sensor element for converting incident light into an electrical signal, and a thin film transistor connected to the sensor element, wherein an electrode of the sensor element connected to the thin film transistor is disposed above the thin film transistor, and the thin film transistor has a top gate type structure in which a semiconductor layer, a gate insulating layer, and a gate electrode layer are laminated successively on a substrate.

2. (Original) A photoelectric converter according to claim 1, wherein the thin film transistors are constituted by a plurality of thin film transistors which are connected in series with one another and which use a same gate wiring.

3. (Original) A photoelectric converter according to claim 2, wherein the plurality of thin film transistors comprise: a plurality of transferring thin film transistors for transferring electrical signals from the sensor elements, respectively; and a plurality of resetting thin film transistors for resetting the sensor elements, respectively.

4. (Original) A photoelectric converter according to claim 2, wherein the plurality of thin film transistors comprise: a plurality of amplifying thin film transistors for receiving as their inputs electrical signals from the sensor elements, respectively; a plurality of transferring thin film transistors for outputting the electrical signals, respectively; and a plurality of resetting thin film transistors for resetting the sensor elements, respectively.

5. (Currently Amended) A photoelectric converter according to ~~any one of claims 2 to 4~~ claim 2, wherein each of channel regions of the plurality of thin film transistors is wider than each of gate electrodes of the plurality of thin film transistors.

6. (Currently Amended) A radiation image pickup device, comprising: the photoelectric converter as claimed in ~~any one of claims 1 to 4~~ claim 1; and a conversion unit provided on a light incidence side of the photoelectric converter for converting radiation into light.

7. (Original) A radiation image pickup device comprising a plurality of pixels each comprising a sensor element for converting radiation into an electrical signal, and a thin film transistor connected to the sensor element,

wherein an electrode of the sensor element connected to the thin film transistor is disposed above the thin film transistor, and the thin film transistor has a top

gate type structure in which a semiconductor layer, a gate insulating layer, and a gate electrode layer are laminated successively on a substrate.

8. (Original) A radiation image pickup device according to claim 7, wherein the thin film transistors are constituted by a plurality of thin film transistors which are connected in series with one another and which use a same gate wiring.

9. (Original) A radiation image pickup device according to claim 7, wherein a storage capacitor is connected to the sensor element.

10. (Original) A radiation image pickup device according to claim 8, wherein the plurality of thin film transistors comprise: a plurality of transferring thin film transistors for transferring electrical signals from the sensor elements, respectively; and a plurality of resetting thin film transistors for resetting the sensor elements, respectively.

11. (Original) A radiation image pickup device according to claim 8, wherein the plurality of thin film transistors comprise: a plurality of amplifying thin film transistors for receiving as their inputs electrical signals from the sensor elements, respectively; a plurality of transferring thin film transistors for outputting the electrical signals, respectively; and a plurality of resetting thin film transistors for resetting the sensor elements, respectively.

12. (Currently Amended) A radiation image pickup device according to ~~any one of claims 8 to 11~~ claim 8, wherein each of channel regions of the plurality of thin film transistors is wider than each of gate electrodes of the plurality of thin film transistors.

13. (Original) A radiation image pickup device in which pixels comprising at least: a plurality of semiconductor conversion elements for converting radiation into electric charges; and a plurality of thin film transistors (TFTs) formed below the plurality of semiconductor conversion elements are disposed in matrix on an insulating substrate, wherein the thin film transistor has source and drain electrodes, a impurity doped semiconductor layer, a semiconductor layer, an insulating layer, and a gate electrode formed in this order on the insulating substrate.

14. (Original) A radiation image pickup device according to claim 13, wherein the gate electrode of the thin film transistor is formed so as to overlap the source and drain electrodes.

15. (Original) A radiation image pickup device according to claim 13, wherein the gate electrode of the thin film transistor is formed so as not to overlap the source and drain electrodes.

16. (Original) A radiation image pickup device according to claim 13, wherein the source and drain electrodes of the thin film transistor are covered with the impurity doped semiconductor layer.

17. (Currently Amended) A radiation image pickup device according to ~~any one of claims 13 to 16~~ claim 13, wherein an insulating layer is formed between the insulating substrate and the thin film transistors.

18. (Original) A radiation image pickup device according to claim 17, wherein the insulating layer formed between the insulating substrate and the thin film transistors is made of any one of SiN, SiO₂, and SiON.

19. (Original) A radiation image pickup device in which pixels comprising: a wavelength conversion unit for wavelength-converting radiation; a plurality of semiconductor conversion elements for converting the wavelength-converted radiation into electric charges; and a plurality of thin film transistors formed below the semiconductor conversion elements are disposed in matrix on an insulating substrate,

wherein the thin film transistor has source and drain electrodes, a impurity doped semiconductor layer, a semiconductor layer, an insulating layer, and a gate electrode formed in this order on the insulating substrate.

20. (Currently Amended) A radiation image pickup system comprising:
the radiation image pickup device as claimed in ~~any one of claims 7 to 11,~~
~~13 to 16 and 18 to 19~~ claim 7;
processing means for generating an image as an object for image pickup on
the basis of electrical signals obtained from the radiation image pickup device; and
display means for displaying the image generated by the processing means.